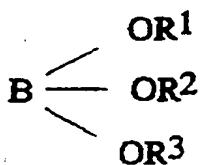


BASF Aktiengesellschaft

We claim:

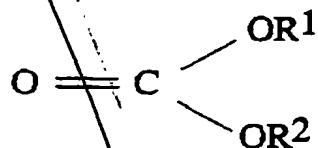
5

1. One ester of the formula (I) to (V)



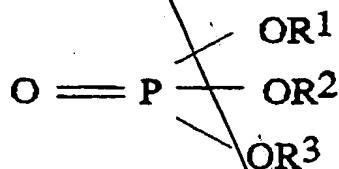
(I)

15



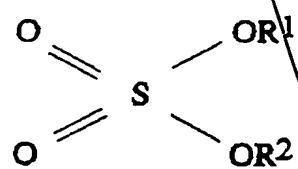
(II)

20



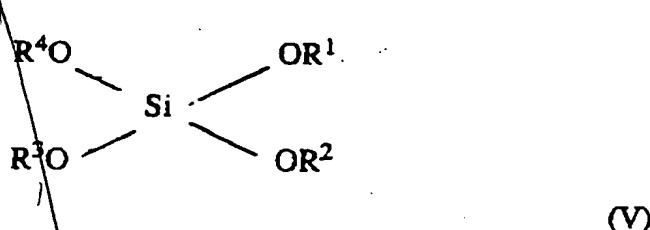
(III)

25



(IV)

30

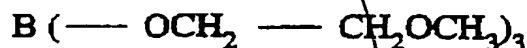


where

R¹, R², R³, R⁴ are identical or different and each, independently of one another, are a linear or branched-chain C₁- to C₄-alkyl, (-CH₂-CH₂-O)_n-CH₃ with n=1 to 3, a C₃- to C₆-cycloalkyl, an aromatic hydrocarbon group which in turn can be substituted, with the proviso that at least one of the groups R¹, R², R³ or R⁴ is (-CH₂-CH₂-O)_n-CH₃ with n=1 to 3,

for use as a solvent in electrolyte systems for Li-ion storage cells.

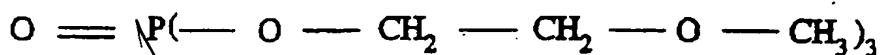
- 15 2. The compound as claimed in claim 1, for the use as a solvent in electrolyte systems for Li-ion storage cells wherein R¹, R² and, where present, R³ and/or R⁴ are identical and are -CH₂-CH₂-O-CH₃ or (-CH₂-CH₂-O)₂-CH₃.
- 20 3. At least one of the compounds of formulae (Ia) to (Va)



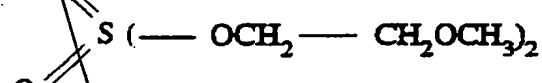
(Ia)



(IIa)



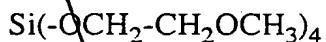
(IIIa)



(IVa)

5

and



(Va)

for use as a solvent in electrolyte systems for Li-ion storage cells.

15 4. Compound as claimed in any one of the preceding claims for the use
as a solvent in electrolyte systems for Li-ion storage cells, wherein
LiPF₆, LiBF₄, LiClO₄, LiAsF₆, LiCF₃SO₃, LiC(CF₃SO₂)₃,
LiN(CF₃SO₂)₂, LiN(SO₂F)₂, LiN(CF₃CF₂SO₂)₂, LiAlCl₄, LiSiF₆,
LiSbF₆ or mixtures of two or more thereof are employed as a
20 conducting salt.

5. A composition comprising:

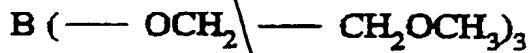
25 (A) at least one compound of formula (I) to (V) as defined in
claim 1, and

(B) a conducting salt selected among:

LiPF₆, LiBF₄, LiClO₄, LiAsF₆, LiCF₃SO₃, LiC(CF₃SO₂)₃,
LiN(SO₂F)₂, LiN(CF₃SO₂)₂, LiN(CF₃CF₂SO₂)₂, LiAlCl₄, LiSiF₆,
LiSbF₆ and a mixture of two or more thereof.

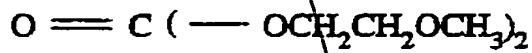
- 5 6. A composition as claimed in claim 5, wherein the compound (A) is selected among the compounds of formulae (Ia) to (Va)

10

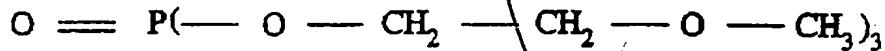


(Ia)

15

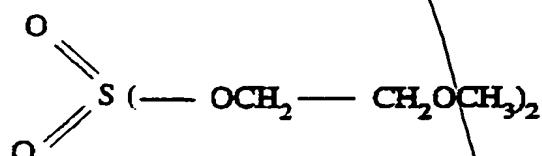


(IIa)



(IIIa)

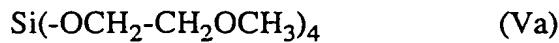
20



(IVa)

25

and



5 and a mixture of two or more thereof, and the conducting salt (B) is
LiBF₄.

7. An Li-ion storage cell comprising at least one ester as defined in any one of claims 1 to 3.
8. An Li-ion storage cell comprising a composition as claimed in claim 5 or 6.
9. A composition as claimed in claim 5 or 6 for use as an electrolyte system in Li-ion storage cells.
10. A process for preparing an ester of formula (I) to (V), as defined in claim 1, characterized in that a chloride is employed as a starting material and a trialkyl amine is used as a scavenger for HCl formed during the preparation of the ester.

Add
B5 >

Add
C17

Add
P2

Key for the figures

Fig. 2/3

horizontal: voltage [mV]

vertical: current [mA]

Fig. 3/3

horizontal: voltage [mV]

vertical: current